BORN SEMICONDUCTOR

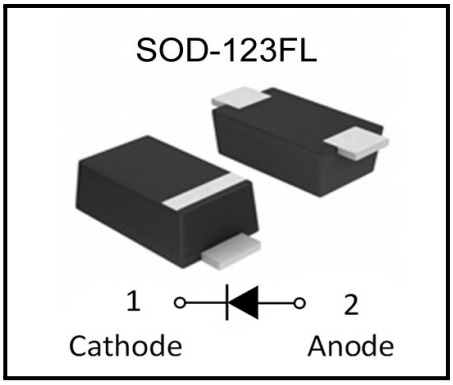
FR107

Fast Recovery Rectifier Diode

Features

- Low forward voltage drop
- High current capability
- High reliability
- High surge current capability
- Epitaxial construction

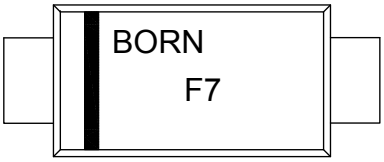
Package



Description

- Case: molded plastic
- Polarity: Color band denotes cathode
- Package: SOD-123FL Plastic Package

Making Code



Ordering information

Order code	Package	Marking	Base qty	Deliverymode
FR107	SOD-123FL	F7	3K	Tape and reel

Maximum Ratings (@T_A=25°C unless otherwise noted)

Symbol	Parameters	Value	Unit
V_{RRM}	Maximum Repetitive Peak Reverse Voltage	1000	V
V_{RMS}	Maximum RMS Voltage	700	V
V_{DC}	Maximum DC Blocking Voltage	1000	V
$IF_{(AV)}$	Maximum Average Forward Rectified Current	1.0	A
I_{FSM}	Non-repetitive Peak Forward Surge Current 8.3ms Single half-sine-wave	30	A
$R_{\theta JA}$	Typical Thermal Resistance	45	°C/W
T_J	Operating Junction Temperature Range	-55 to +150	°C
T_{STG}	Storage Temperature Range	-55 to +150	°C

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Electrical Characteristics (@T_A=25°C unless otherwise noted)

Symbol	Parameters	Value	Unit
V_F	at I_F=1.0A Max. Forward Voltage	1.3	V
I_R	at VDC T_A = 25°C	5	uA
	Max. Reverse Current T_A = 100°C	100	
T_{RR}	Max. Reverse Recover Time I_F=0.5A,I_R=1.0A,I_{RR}=0.25A	500	nS
C_J	V_R=4.0V,f=1MHz Type Junction Capacitance	15	pF

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Typical Performance Characteristics(T_J = 25 °C, unless otherwise noted)

Figure 1: Typical Forward Characteristics

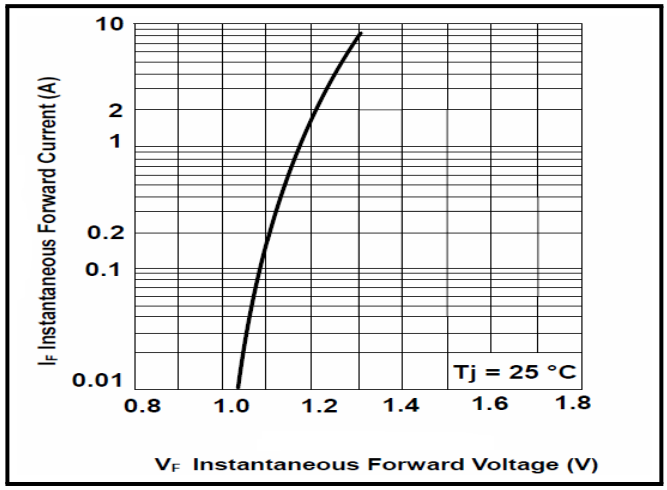


Figure 2: Forward Current Derating Curve

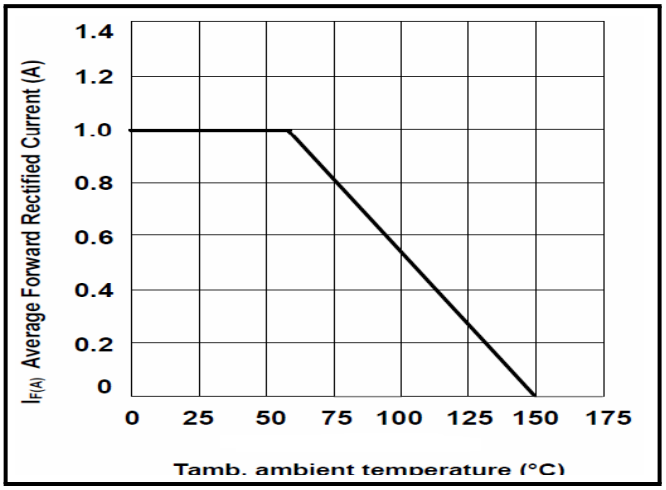
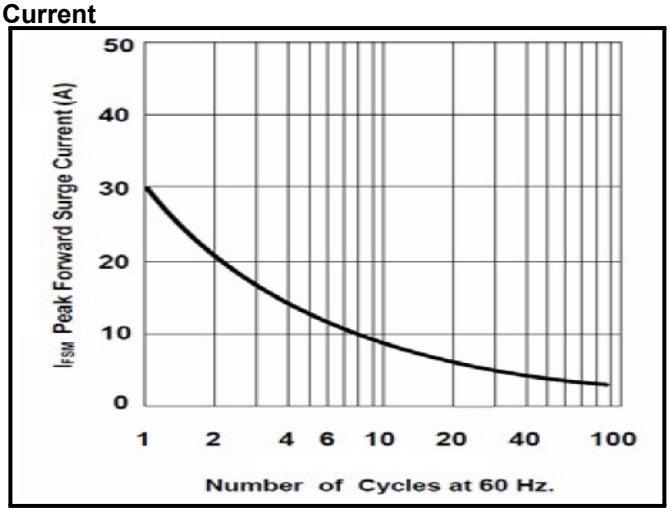


Figure 3: Maximum Non-Repetitive Peak Foward Surge Current



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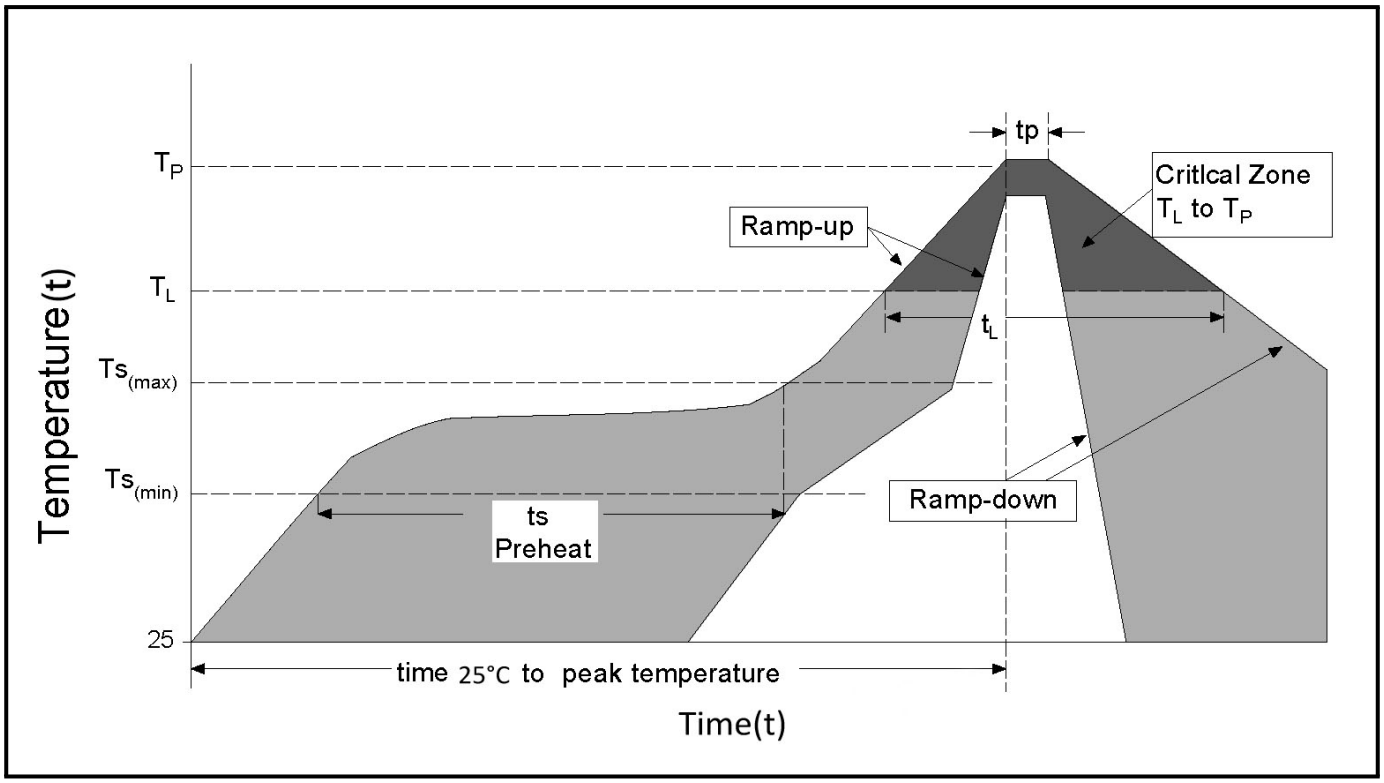
Soldering Parameters



Reflow Condition		Lead-free assembly
Pre Heat	- Temperature Min (T_S(min))	150°C
	- Temperature Max (T_S(max))	200°C
	- Time (min to max) (t_S)	60 - 180 secs
Average ramp up rate (Liquidus Temp (T_L) to peak)		3°C/second max
T_S(max) to T_L - Ramp-up Rate		3°C/second max
Reflow	- Temperature (T_L) (Liquidus)	217°C
	- Time (t_L)	60 -150 secs
Peak Temperature (T_P)		$260^{+0/-5°C}$
Time within 5°C of actual peak Temperature (t_p)		20 -40 secs
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (t)		8 minutes Max.
Do not exceed		260°C

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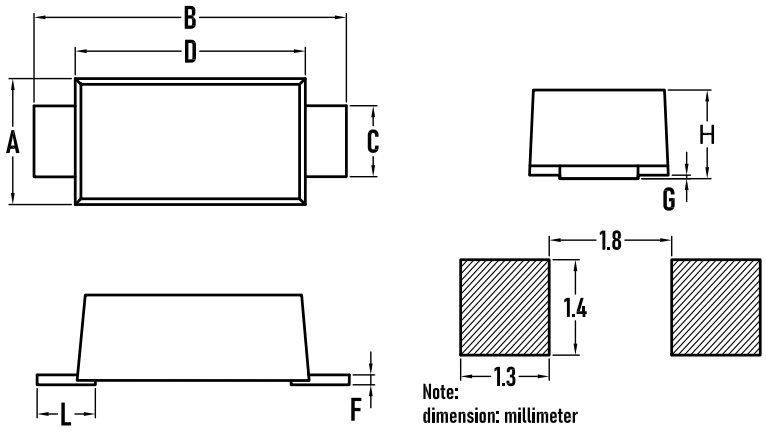
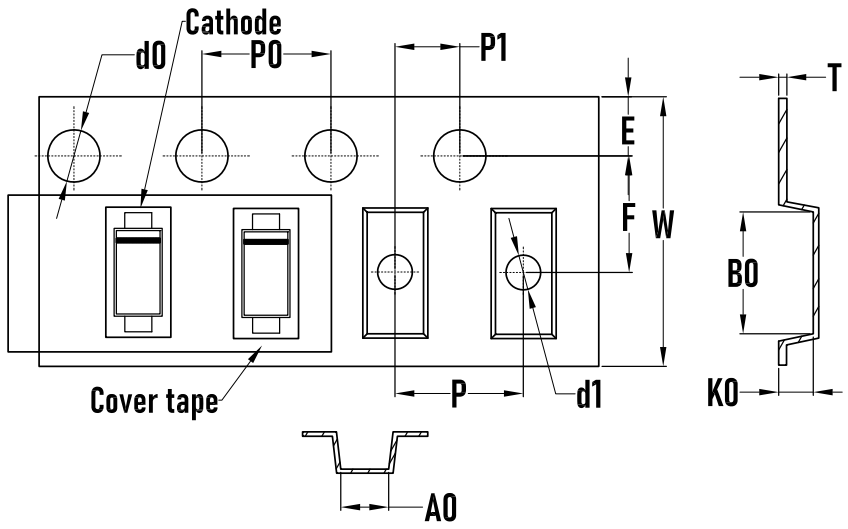
Package Mechanical Data - SOD-123FL



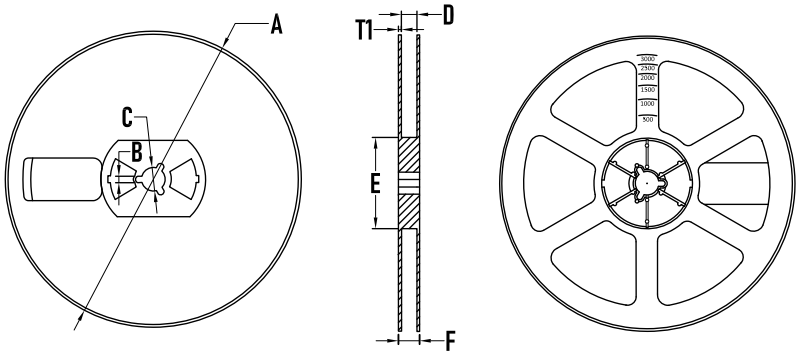
SYMBOL	MILLIMETER		
	MIN.	Typ.	MAX.
A	1.50	1.75	2.00
B	3.40	3.65	3.90
C	0.70	0.95	1.20
D	2.50	2.70	2.90
F	0.05	0.15	0.26
G	0.00	–	0.10
H	0.95	1.15	1.35
L	0.35	0.63	0.90

Packaging Tape - SOD-123FL



SYMBOL	MILLIMETER
A0	2.10±0.1
B0	4.0 ±0.1
d0	1.5±0.1
d1	1.0±0.1
E	1.75±0.1
F	3.50±0.1
K0	1.25±0.1
P	4.00±0.1
P0	4.00±0.1
P1	2.00±0.1
W	8.00±0.1
T	0.2±0.02

Packaging Reel



SYMBOL	MILLIMETER
A	177.8±0.2
B	2.7±0.2
C	13.5±0.2
D	9.6±0.3
E	54.5±0.2
F	12.3±0.3
T1	1.0±0.2
Quantity	3000PCS

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